

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

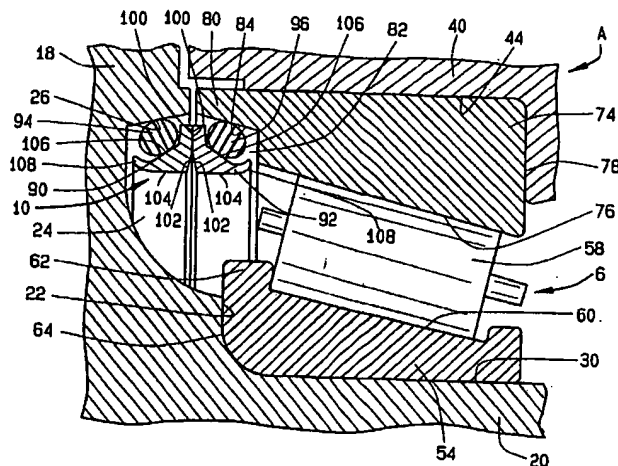
PCT

(10) International Publication Number
WO 2005/047720 A1

- (51) International Patent Classification⁷: **F16C 33/78**, F16J 15/34
- (21) International Application Number: **PCT/US2004/038250**
- (22) International Filing Date:
10 November 2004 (10.11.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/518,941 10 November 2003 (10.11.2003) US
- (71) Applicant (for all designated States except US): **THE TIMKEN COMPANY** [US/US]; 1835 Dueber Avenue S.W., Canton, Ohio 44706-0930 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **BURNER, Bruce C.** [US/US]; 13197 Bayton Street, Alliance, Ohio 44601 (US). **FOX, Gerald P.** [US/US]; 5715 Old Bridge Avenue N.W., Massillon, Ohio 44646 (US). **ALLEGA, Michael D.** [US/US]; 8177 Cleveland-Massillon Road, Cottage 57, Clinton, Ohio 44216 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: BEARING ASSEMBLIES WITH SEALS



(57) Abstract: A bearing assembly (A-H) enables one member (4) to rotate relative to another member (2) about an axis (X). It includes a bearing (6) having an inner race (54) on one of the members, an outer race (74, 126, 164, 250) in the other member, and rolling elements (58) between raceways on the two races. A seal (10, 180, 210, 256) excludes contaminants from the interior of the bearing, and it includes a wear ring (92, 184, 214, 276) carried by an extension (80, 128, 144, 168, 252) on the outer race beyond the raceway of that race, a contacting wear ring (90, 182, 212, 278) carried by the member on which the inner race is located or else by a can (110, 230, 254) that is fitted to the inner race. The seal also includes backing elements (94, 96, 192, 194, 216, 218, 294) for supporting the wear rings on that which carries them, and in most instances the backing elements exert a biasing force on the wear rings to maintain them in contact, so that they establish a dynamic fluid barrier. The backing elements may include O-rings (94,96), polymer connecting segments (200) or springs (292) and a membrane (294).

WO 2005/047720 A1



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.